

# Work Order ID 113036

February-13-14 2:58:44 PM

**\*113036\***

Page 1

Item ID: D3065-7

Accept

**\*N900040100\***

Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Step Spacer

Start Date: 10/02/2014 Start Qty: 20.00

**\*20\***

Cust Item ID:

Required Date: 10/02/2014 Req'd Qty: 20.00

**\*20\***

Customer:

Reference:

Approvals:

Process Plan:

Date: 14-02-13

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start **\*NR1\***

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D3065	Rev B								

100 0.00

**\*100\***

FLOW WATER JET

Waterjet

Memo

0.00

FLOW CNC Waterjet

1-Cut as per Dwg D3065 Dwg Rev: Prog Rev: 2

ISSUE PO P013011

POSSIBLE SUPPLIER: LOEBSACK WATERJET

DAS  
27  
9-89

101

**\*101\***

Small Fab

Memo

0.00

Small Fab

DEBURR A/R

NA

103

Bend as per dwg

0.00

**\*103\***

Brake NC

Memo

0.00

Brake NC

D3065

WJ 2/18/14

19

PTD

DAS  
36  
9-89 DAS  
30  
9-89

19

14/04/17

DQA:

Date:

14/05/16

## WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed:

Date:

14/5/15

Work Order update only ☐

Work Order: <u>113036</u>	<b>DISPOSITION</b> Rework <input type="checkbox"/> Scrap <input checked="" type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/>	<b>AGAINST DEPARTMENT/PROCESS</b>			
Part No. <u>D-30657</u>		Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>
NCR No. <u>1A-3866</u>		Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input checked="" type="checkbox"/>
		Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>
		Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input checked="" type="checkbox"/>	

Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design									
Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

## FAULT CATEGORY

<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave <input type="checkbox"/> Cuffs <input type="checkbox"/> Crushing <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Marks/Chatter <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drawing <input type="checkbox"/> Drill Holes <input type="checkbox"/> Finish <input type="checkbox"/> Fit/Function	<input type="checkbox"/> Folio/Program <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Off-set <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence	<input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input checked="" type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge	<input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Set-up <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other
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Work Order ID 113036

\*113036\*

Page 2

Item ID: D3065-7

Accept

\*N900040100\*

Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

Item Name: Step Spacer

Start Date: 10/02/2014 Start Qty: 20.00

\*20\*

Cust Item ID:

Required Date: 10/02/2014 Req'd Qty: 20.00

\*20\*

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start \*NR1\*

Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
104	QC5- Inspect part completeness to step on W/O	0.00				19			
*104*									
QC	Memo	0.00		4/4/17					
Quality Control									
108	Chemical Conversion Coat per QSI005 4.1	0.00				19		7614421	
*108*									
HandFinish	Memo	0.00							
Hand Finishing									
110	QC3- Inspect Part Finish	0.00							
*110*									
QC	Memo	0.00				19x		14/04/23	
Quality Control									

DAS  
36  
9-89

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

Work Order: _____  Part No. _____  NCR No. _____	<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/>	<b>AGAINST DEPARTMENT/PROCESS</b>  <table style="width: 100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>															
Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>															
Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>																

Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design									
Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

### FAULT CATEGORY

<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave <input type="checkbox"/> Cuffs <input type="checkbox"/> Crushing <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Marks/Chatter <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drawing <input type="checkbox"/> Drill Holes <input type="checkbox"/> Finish <input type="checkbox"/> Fit/Function	<input type="checkbox"/> Folio/Program <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Off-set <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence  <input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge  <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Set-up <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other
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# Work Order ID 113036

February-13-14 2:58:44 PM

**\*113036\***

Page 3

Item ID:	D3065-7	Accept	<b>*N900040100*</b>	Setup	Start	<b>*NS1*</b>
Revision ID:					Stop	<b>*NS2*</b>
Item Name:	Step Spacer					
Start Date:	10/02/2014	Start Qty:	20.00	<b>*20*</b>	Cust Item ID:	
Required Date:	10/02/2014	Req'd Qty:	20.00	<b>*20*</b>	Customer:	
Reference:						

Approvals:	Process Plan:	Date:	Tooling:	Date:	Run	Start	<b>*NR1*</b>
	QC:	Date:	SPC (Y/N):	Date:		Stop	<b>*NR2*</b>

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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115	Receive & Inspect for Damage & Mat'l Certs	0.00							
<b>*115*</b>									
Packaging	Memo	0.00							
Packaging									

170	QC6- Inspect dimensions to drawing	0.00							
<b>*170*</b>									
QC	Memo	0.00							
Quality Control									

180	Identify as per dwg & Stock Location: <u>G-A</u>	0.00							
<b>*180*</b>									
Packaging	Memo	0.00							
Packaging									

19 ~~20x~~ 14/04/23 DAS 36 9-89

19 ~~20x~~ 14/04/23 DAS 36 9-89

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

Work Order: _____  Part No. _____  NCR No. _____	<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/>	<b>AGAINST DEPARTMENT/PROCESS</b>  <table style="width: 100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>															
Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>															
Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>																

Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design									
Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

### FAULT CATEGORY

<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave <input type="checkbox"/> Cuffs <input type="checkbox"/> Crushing <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Marks/Chatter <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drawing <input type="checkbox"/> Drill Holes <input type="checkbox"/> Finish <input type="checkbox"/> Fit/Function	<input type="checkbox"/> Folio/Program <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Off-set <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence	<input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge  <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Set-up <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other  _____ _____ _____
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Work Order ID 113036

February-13-14 2:58:44 PM

\*113036\*

Page 4

Item ID: D3065-7

Accept

\*N900040100\*

Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

Item Name: Step Spacer

Start Date: 10/02/2014 Start Qty: 20.00

\*20\*

Cust Item ID:

Required Date: 10/02/2014 Req'd Qty: 20.00

\*20\*

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop \*NR2\*

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

190

QC21- Final Inspection - Work Order Release

0.00

\*190\*

QC

Memo

0.00

Quality Control

14/04/24

14-4-24

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

Work Order: _____  Part No. _____  NCR No. _____	<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/>	<b>AGAINST DEPARTMENT/PROCESS</b>  <table style="width:100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>															
Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>															
Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>																

Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design									
Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

### FAULT CATEGORY

<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave <input type="checkbox"/> Cuffs <input type="checkbox"/> Crushing <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Marks/Chatter <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drawing <input type="checkbox"/> Drill Holes <input type="checkbox"/> Finish <input type="checkbox"/> Fit/Function	<input type="checkbox"/> Folio/Program <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Off-set <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence	<input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge  <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Set-up <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other  _____ _____ _____
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## February-13-14 2:58:50 PM

Page 1

**\*1 13036\***

**\*D3065-7\***

**Start Date:** 10/02/2014**Required Date:** 10/02/2014

**Start Qty: 20.00**

**Required Qty: 20.00**

**Comments:** IPP: C02.11.01Incorporated D3066-1 IPPKJ/RF  
IPP Rev:D Now on Water Jet 06-04-11 JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D3065-7P <b>*D3065-7P*</b> Step Spacer		Purchased	No				Each	0.0000		20			

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

Work Order: _____  Part No. _____  NCR No. _____	<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/>	<b>AGAINST DEPARTMENT/PROCESS</b>  <table style="width: 100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>															
Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>															
Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>																

Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design									
Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

### FAULT CATEGORY

<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave <input type="checkbox"/> Cuffs <input type="checkbox"/> Crushing <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Marks/Chatter <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drawing <input type="checkbox"/> Drill Holes <input type="checkbox"/> Finish <input type="checkbox"/> Fit/Function	<input type="checkbox"/> Folio/Program <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Off-set <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence	<input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge  <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Set-up <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other  _____ _____ _____
--	--	---	---

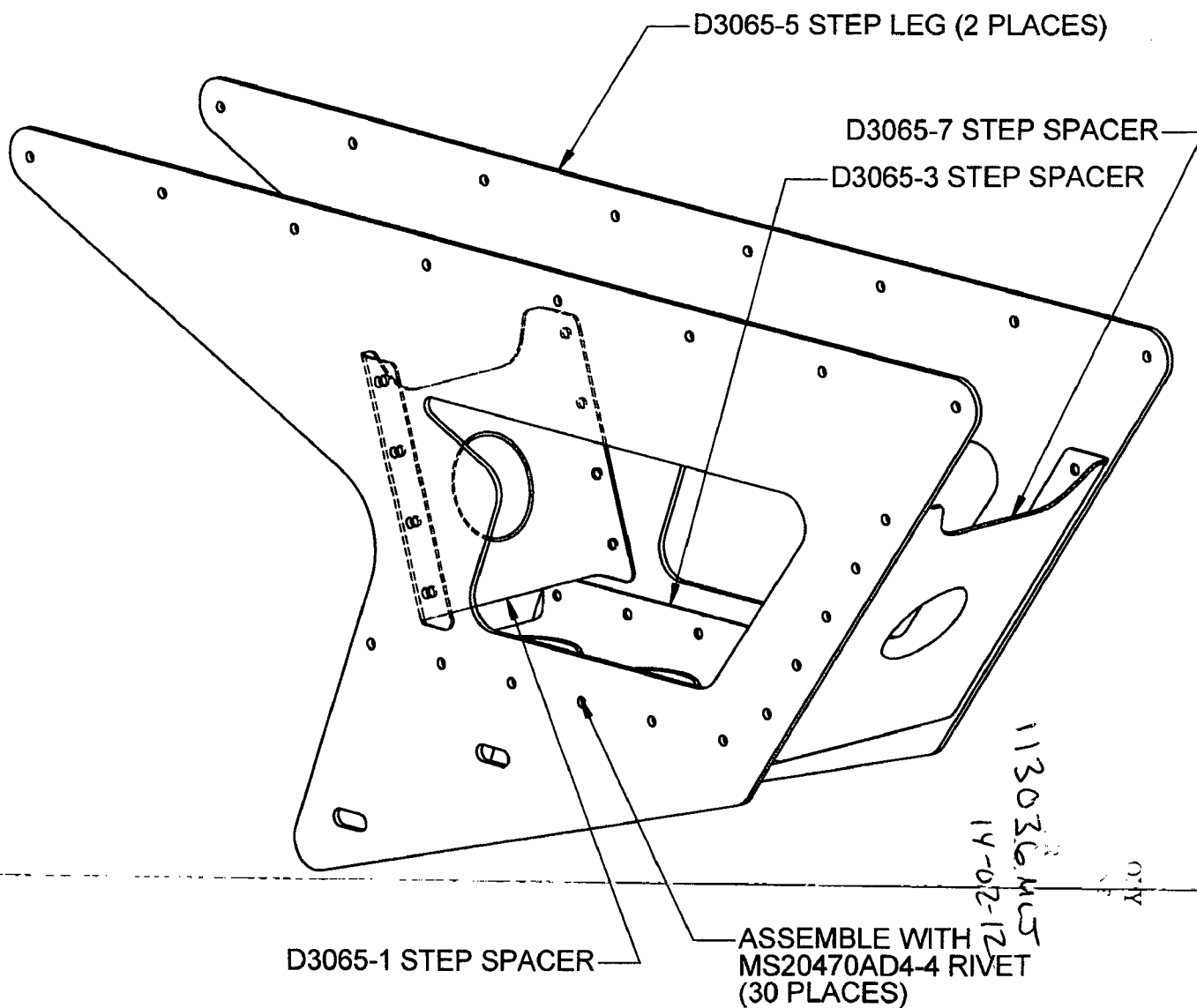




DESIGN <i>CP</i>	DRAWN BY <i>CB</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>PH</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D3065	REV. B SHEET 1 OF 5
DATE 06.05.23		TITLE STEP LEG ASSEMBLY SCALE 1:2	
A	02.09.11	NEW ISSUE	
B	06.05.23	ADD 6061-T6 MATERIAL, ADD SLOTS TO D3065-5	

RELEASED

06.06.20 *[Signature]*



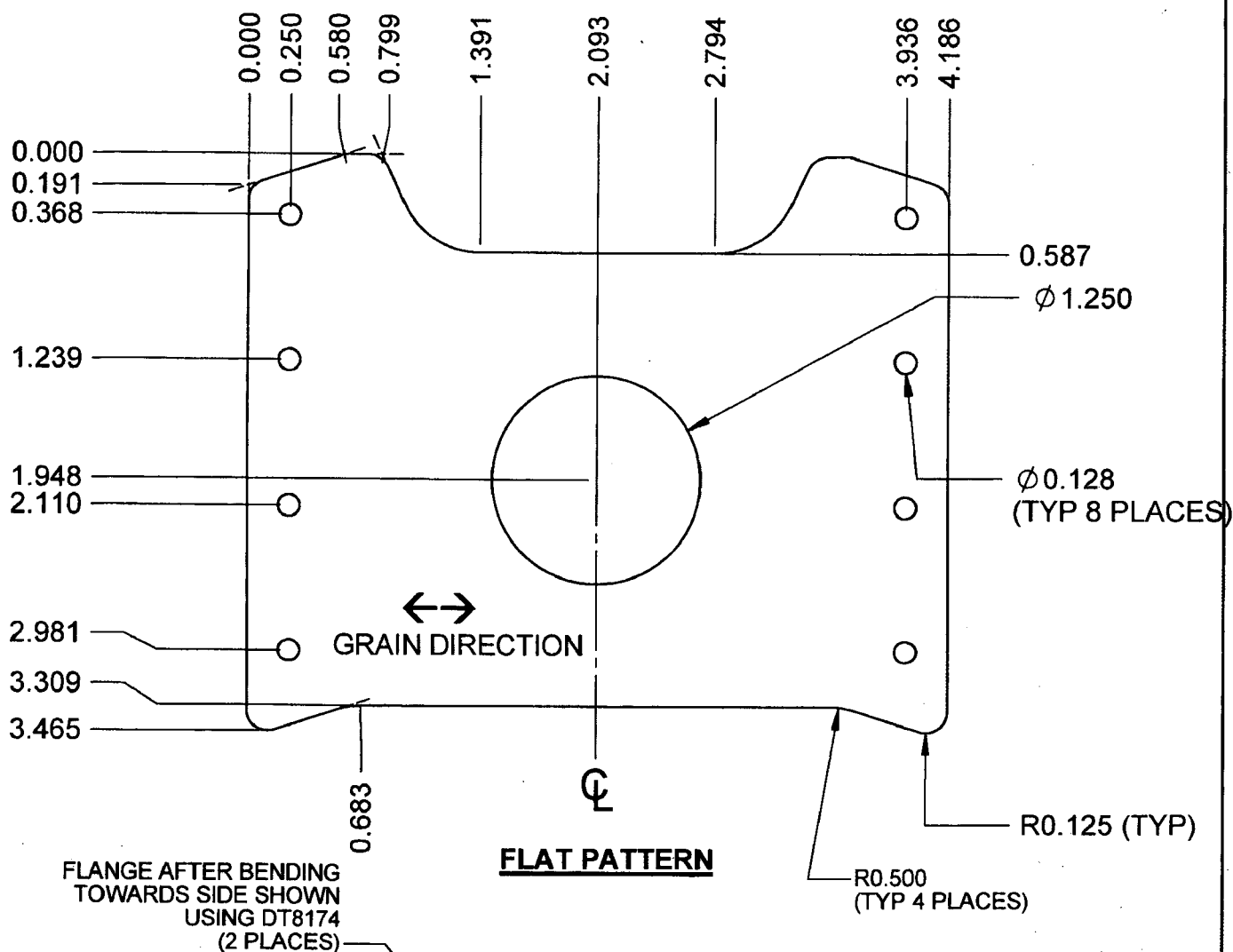
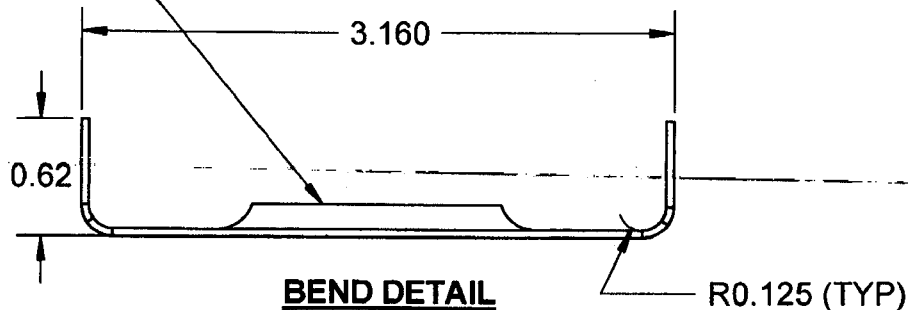
## D3065-041 STEP LEG ASSEMBLY

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**DART**

DESIGN <i>CP</i>	DRAWN BY <i>CB</i>	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>PH</i>	APPROVED <i>[Signature]</i>	DRAWING NO. <b>D3065</b>	REV. B SHEET 2 OF 5
DATE <b>06.05.23</b>		TITLE <b>STEP LEG ASSEMBLY</b>	SCALE 1:1

**RELEASED***de de re***D3065-1 STEP SPACER**

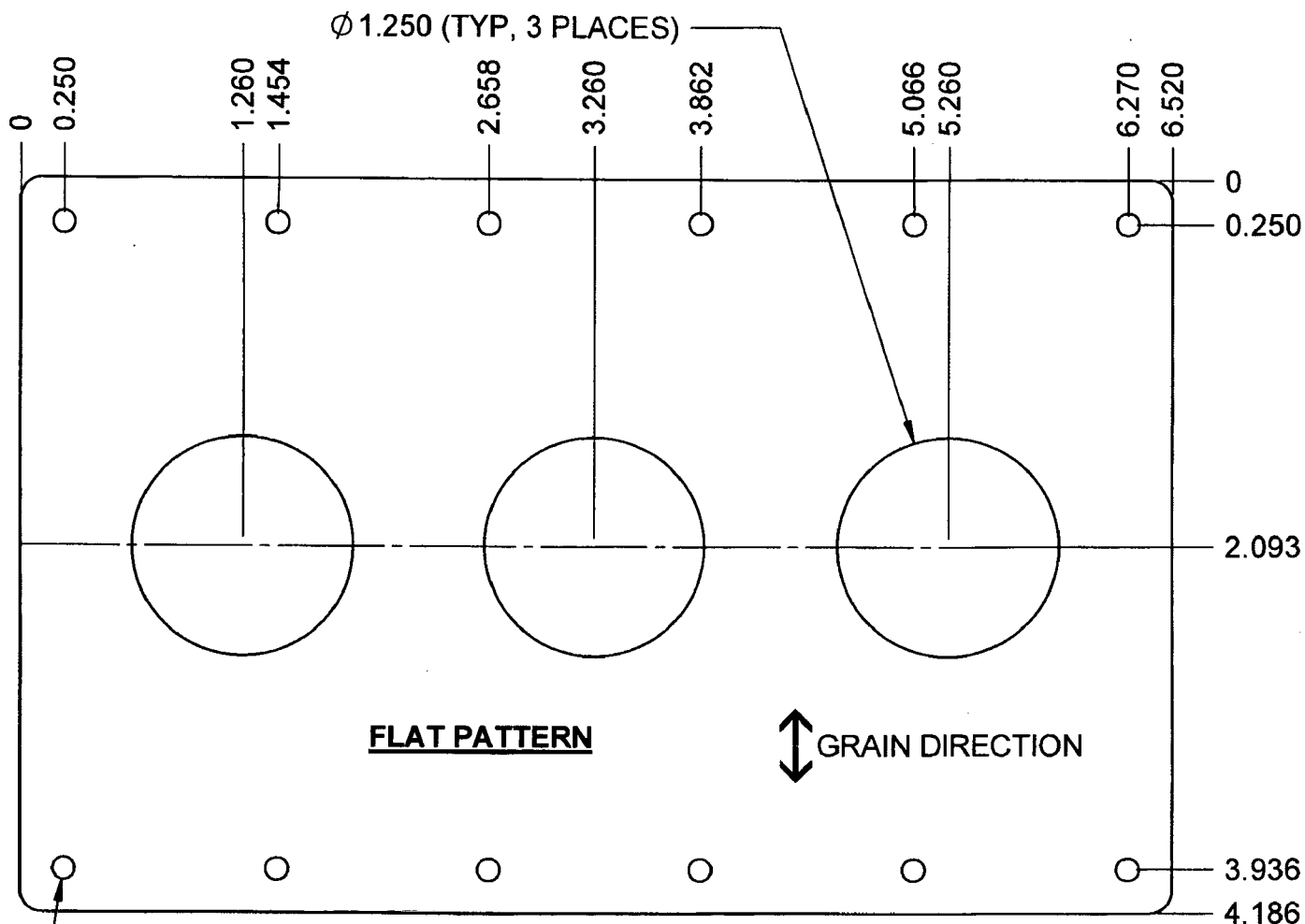
- 1) MATERIAL: 2024-T3 (QQ-A-250/4) 0.040 THICK (REF DART SPEC. M2024T3S.040)
- 2) FINISH: ACID ETCH & ALODINE PER DART QSI 005 4.1
- 3) BREAK ALL SHARP EDGES 0.005 TO 0.010
- 4) PART IS SYMMETRIC ABOUT CENTERLINE
- 5) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 6) ALL DIMENSIONS ARE IN INCHES

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DESIGN <i>UP</i>	DRAWN BY <i>CB</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>PH</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D3065	REV. B SHEET 3 OF 5
DATE 06.05.23	TITLE STEP LEG ASSEMBLY SCALE 1:1		

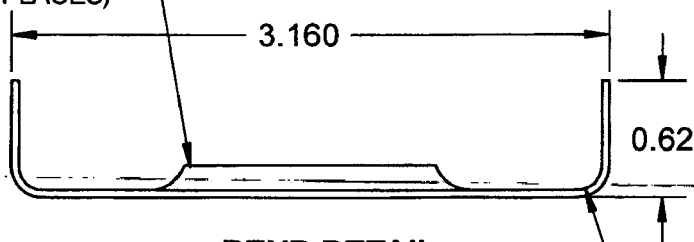


FLANGE AFTER TOWARDS SIDE  
SHOWN USING DT8174 (3 PLACES)

Ø 0.129 (TYP, 12 PLACES)

**RELEASED**

*cl ck 20*



**BEND DETAIL**

### D3065-3 STEP SPACER

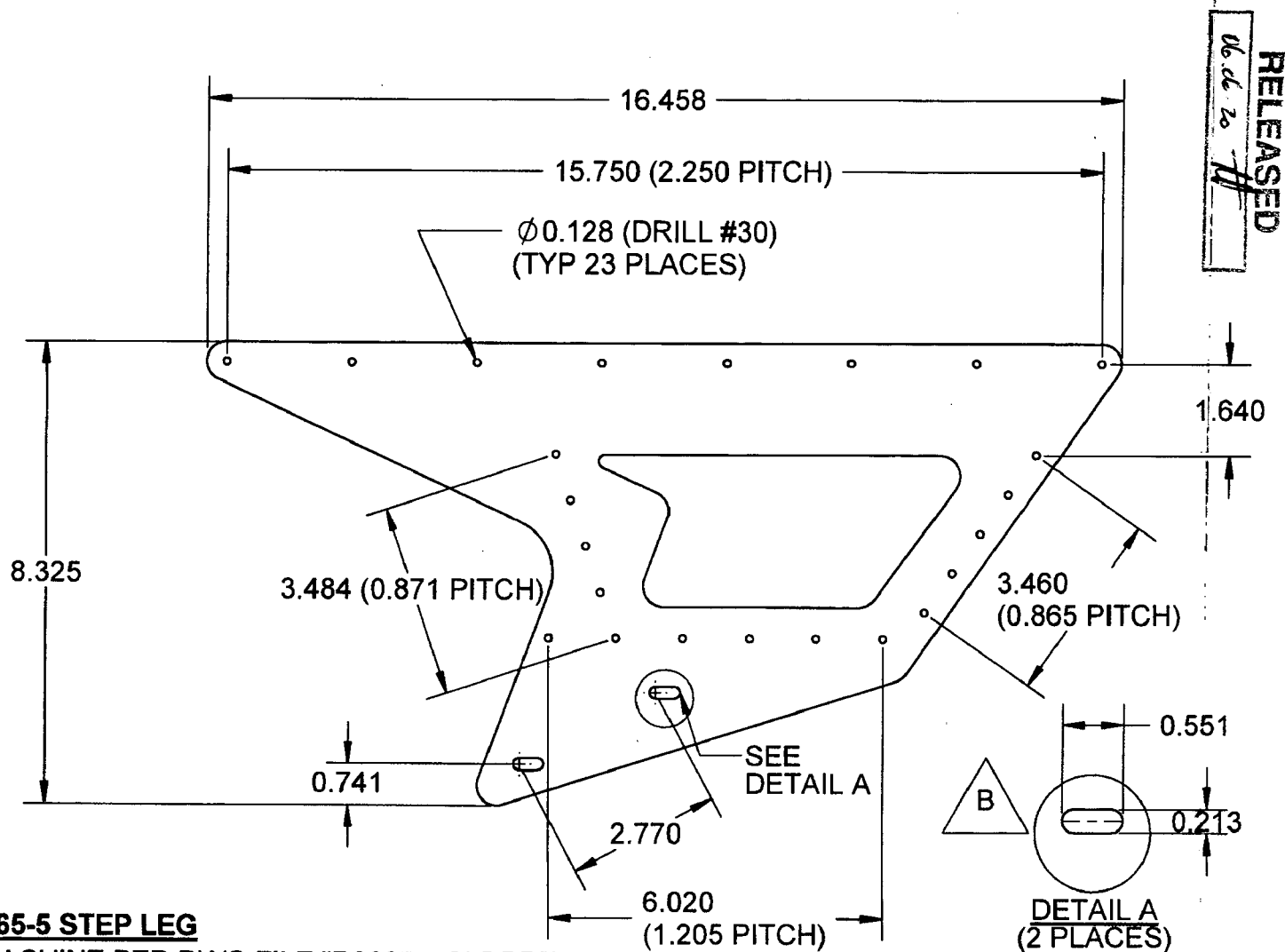
- 1) MATERIAL: 2024-T3 (QQ-A-250/4)  
0.040 THICK (REF DART SPEC. M2024T3S.040)
- 2) FINISH: ACID ETCH & ALODINE PER DART QSI 005 4.1
- 3) PART IS SYMMETRIC ABOUT CENTERLINE
- 4) BREAK ALL SHARP EDGES 0.005 TO 0.010
- 5) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 6) ALL DIMENSIONS ARE IN INCHES

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**DART**

DESIGN	CP	DRAWN BY	CB	<b>DART AEROSPACE LTD</b>
CHECKED	PH	APPROVED	PH	HAWKESBURY, ONTARIO, CANADA
DATE	06.05.23	DRAWING NO.	D3065	REV. B
TITLE	STEP LEG ASSEMBLY	SHEET 4 OF 5	SCALE	1:3



**D3065-5 STEP LEG**

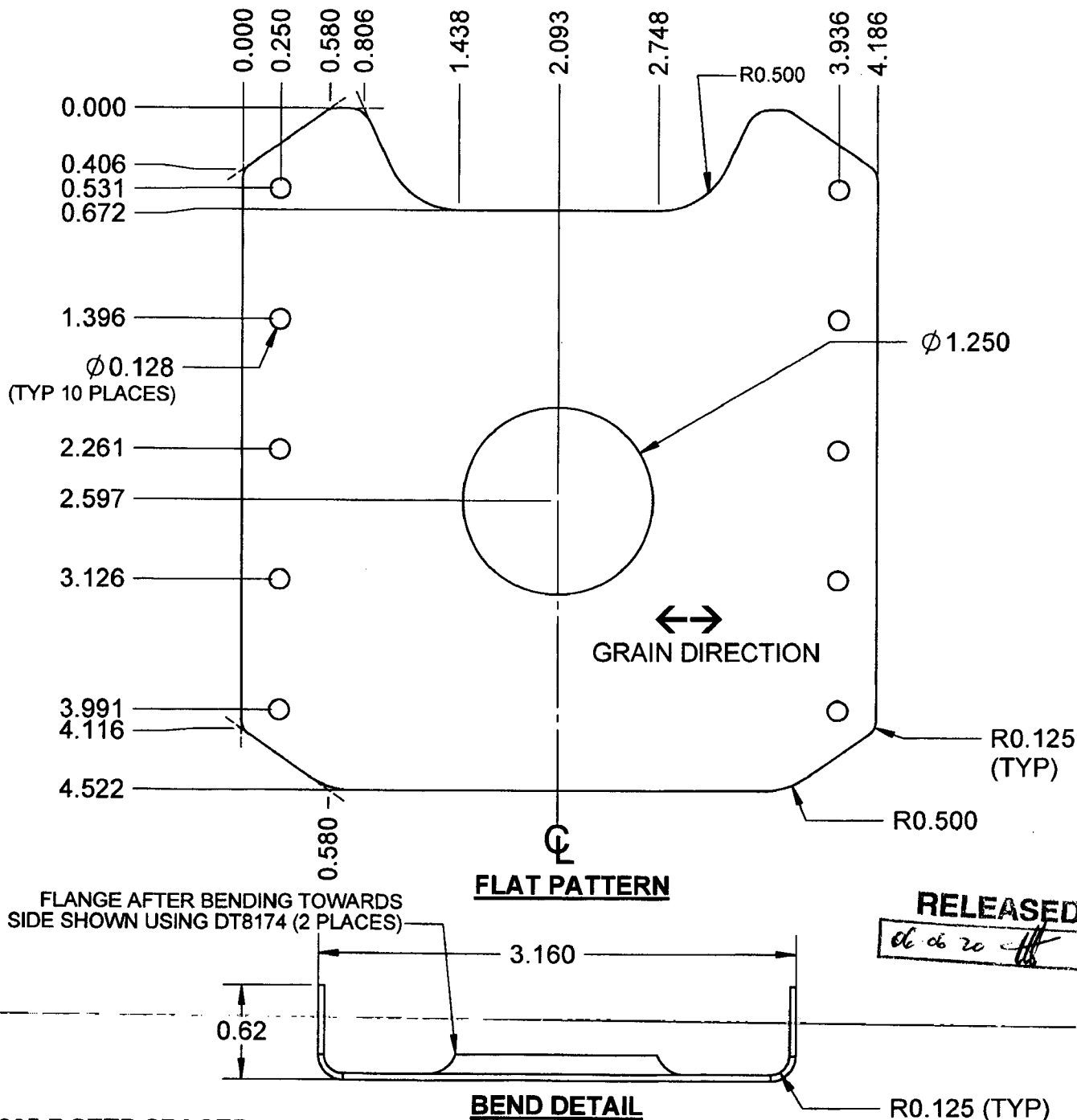
- 1) MACHINE PER DWG FILE "D3065-5.SLDPRT"
- 2) MATERIAL: 6061-T6 (PER QQ-A-250/11 OR AMS 4025 OR AMS 4027) 0.080" THICK (REF DART SPEC M6061T6S.080)  
OR  
5052-H32 (PER QQ-A-250/8 OR AMS 4016) 0.080 THICK (REF DART SPEC. M5052H32S.080)
- 3) FINISH: ACID ETCH & ALODINE PER DART QSI 005 4.1
- 4) BREAK ALL SHARP EDGES 0.005 TO 0.010
- 5) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 6) ALL DIMENSIONS ARE IN INCHES

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**DART**

DESIGN <i>CP</i>	DRAWN BY <i>CB</i>	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>PH</i>	APPROVED <i>[Signature]</i>	DRAWING NO. <b>D3065</b>	REV. <b>B</b>
DATE <b>06.05.23</b>		TITLE <b>STEP LEG ASSEMBLY</b>	SHEET 5 OF 5 SCALE 1:1

**RELEASED****D3065-7 STEP SPACER**

- 1) MATERIAL: 2024-T3 (PER QQ-A-250/4) 0.040 THICK (REF DART SPEC. M2024T3S.040)
- 2) FINISH: ACID ETCH & ALODINE PER DART QSI 005 4.1
- 3) PART IS SYMMETRIC ABOUT CENTERLINE
- 4) BREAK ALL SHARP EDGES 0.005 TO 0.010
- 5) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 6) ALL DIMENSIONS ARE IN INCHES

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Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

## PURCHASE ORDER

Purchase Order ID **PO23011**

Purchase Order Date 2/14/2014

PO Print Date 2/14/2014

Page Number 8 of 9

**Order From :**

VC-LWC001

**Ship To :** DART AEROSPACE LTD

LOEBSACK WATERJET CANADA LTD.  
55 NORTHFIELD DR. E.  
P.O.BOX 339

1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

WATERLOO, ONTARIO N2K 3T6

Contact Name

Vendor Phone

Ship To Contact

Ship To Phone

Ship Via:

FedEx PI collect

Ship Acct:

Buyer

Michael Gregoire

Customer POID

Customer Tax #

10127-2607

Terms

Net 30

Currency

CAD

FOB

FCA - (Free Carrier)

21	D3065-7P	Step Spacer	3/28/2014	20.00	\$7.00	\$140.00
			Yes	Each		
			3/28/2014			

Manufacture as per drawing D3065 rev.b  
B113036

	D3065-7P		3/28/2014	40.00	\$7.00	\$280.00
				Each		
			3/28/2014			

Manufacture as per drawing D3065 rev.b  
B111400

Line Total: \$420.00

22	D3537-1P	Wearpad	3/28/2014	40.00	\$4.30	\$172.00
			Yes	Each		
			3/28/2014			

Manufacture as per drawing D3537 rev.c  
B113358

	D3537-1P		3/28/2014	40.00	\$4.30	\$172.00
				Each		
			3/28/2014			

Manufacture as per drawing D3537 rev.c  
B113229

**PO Instructions:** PROCUREMENT QUALITY CLAUSES

A005 RIGHT OF ENTRY

A008 FIRST ARTICLE INSPECTION (FAI) BY SELLER, (DOCUMENTATION SENT TO DART AEROSPACE)

A012 CHEMICAL AND PHYSICAL TEST REPORTS

A016 PERSONNEL QUALIFICATION

A017 RAW MATERIAL IDENTIFICATION (AS APPLICABLE)

A026 CERTIFICATION OF MATERIAL CONFORMANCE

A042 DART NOTIFICATION BY SUPPLIER

Note:

## Certificate of Compliance

Sold To: DART Aerospace

Purchase Order Nu ID PO23011

Item	Quantity	Part Number	Revision	Description	Mtl. / Thk.	HT Number
18(4)	60	D3065-1	b	STEP SPACER	2024-T3 / 0.040"	663172A5
19(5)	100	D3065-3	b	STEP SPACER	2024-T3 / 0.040"	663172A5
21(7)	60	D3065-7	b	STEP SPACER	2024-T3 / 0.040"	663172A5
20(6)	110	D3065-5	b	STEP LEG	5052-H32 / 0.080"	3C5291
9(8)	20	D4093-1	d	BRACKET	6061-T6 / 0.750"	37797032
10(9)	10	D4093-3	d	BRACKET	6061-T6 / 0.750"	37797032
8(2)	20	D3319-1	c	WEARPLATE	CRS 18GA / 0.048"	3683T3-51
7(1)	20	D3319-3	c	WEARPLATE	CRS 18GA / 0.048"	3683T3-51
22(3)	120	D3537-1F	c	WEARPAD	304 SS / 0.063"	A1303988
11(10)	40	D3405-1F	b	GHW BRACKET	304 SS / 0.120"	350420

This is to certify that the whole of the supplies detailed hereon has been inspected, tested, packed, and unless otherwise stated, conform in all respects with the requirements of the contract or order.

Name: Derek Loebsack

Title: President

Sign:



Dated:

07-14-04

# THYSSENKRUPP MATERIALS NA

J.M. WOODTURNING LTD

ALUMINUM PLATE 6061-T651  
750" THICK X 48.5000" X 96.5000"  
PART NO.

PO/Re: FRED

We certify that this is a true copy of the report  
furnished by the producer of the metal, or data  
resulting from tests made in approved labs.

Signed by: \_\_\_\_\_

## Certificate of Mill Test Results

BL PEC-851084-001

19Nov13

Pg 1/1

### TEST CERTIFICATE



Certificate No: 1209182682

Hulamin Limited Reg. No. 194001234/03 VAT Reg. No. 408314904  
HEAD OFFICE: Moore Station Rd, Pirmasensburg 3207, P.O. Box 74, Pirmasensburg 3206, North Rhine  
Telephone: +49 53 25568711 Telex: +49 53 254 6035

BUYER: TA CHEN INTERNATIONAL INC 5855 OULSPO AVE LONG BEACH CA 90803	Hulamin Lot No:	15.012523	Product:	PLATE HEAT TREATED LINGHEO, 6061-T651 0.75" x 48.5" x 96.5"
	Lot No:	17/09/032CB	Dimension:	0.75" x 48.5" x 96.5"
	PL/lot No:	371401413	Alloy - Temper:	6061 - T651
	Release No:	RE03656		
	Cast Order No:	NO3100-S	Certificate No:	1209182682
	HULAMIN Order No:	181742E	Cast Ref/Part No:	
	Item Part:	1/1	Combined PL/lot No:	R-2084E

Case No: PFV871

### MECHANICAL TEST RESULTS

Lot No.	Cast No.	Metal Id	Alloy	Spec No	Mechanical Properties								Actual Gauge (Inches)
					Yield Strength (Ksi)	UTS (Ksi)	Elongation A50 (%)	Enrting (%)	Tensile	Gauge Length (Inches)	Band Test		
Spec				Min	33.1	42.0	9						0.75
				Max									0.761
17/09/032CB	VA5T	37797032	6061	1	41.6	46.7	15		07/09/12	2			0.765
				2	41.6	46.7	15		07/09/12	2			0.765

### CHEMICAL COMPOSITION

	Cast No.	Alloy	Si (%)	Fe (%)	Cu (%)	Mn (%)	Mg (%)	Cr (%)	Zn (%)	Ti (%)	Each (%)	Total (%)	Al (%)
Min			0.40		0.15		0.8	0.04					
Max			0.8	0.7	0.40	0.15	1.2	0.35	0.25	0.15	0.05	0.15	
	VA5T	6061	0.65	0.44	0.28	0.11	1.01	0.21	0.01	0.012			97.20

CONFORMS TO: ABME 8D-200 ASTM B209-10 AMS 4037M AMS-00A-70011, DL1007

For purposes of determining conformance with these specifications, an observed value or a calculated value shall be rounded "to the nearest unit" in the last right-hand digit used in expressing the specification limit, in accordance with the rounding method of ASTM Practice E28, for Using Significant Digits in Test Data to Determine Conformance with Specifications.

WE HEREBY CERTIFY, THAT THE MATERIAL DESCRIBED ABOVE HAS BEEN TESTED AND COMPLIES WITH THE TERMS OF THE ORDER CONTRACT. THE INSPECTION RESULTS INDICATED IN THE CHEMICAL COMPOSITION HAVE BEEN OBTAINED FROM CAST ANALYSIS.

Dr. A. Provon (HEAD OF CHEMICAL TESTING)

Ver 1.0.1

V. Markov (HEAD OF PHYSICAL TESTING)

MILL TEST REPORT  
Customer: COPCON PO#PEC-233613 SO#JHR6420  
Item: 75048965061T651 Bundle: PFV871 Head: 37797032

THIS MTR contains 1 page (Page# 1)  
MTR#: HLCR181784\_P1

# KAISER ALUMINUM FABRICATED PRODUCTS

*Best in Class*

## CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

Kaiser Aluminum  
Trentwood Works  
Spokane, WA 99215-5108  
(800) 367-2586

CUSTOMER PO NUMBER: 5400197766-20		WORK PACKAGE:	CUSTOMER PART NUMBER: ALFLR01581		PRODUCT DESCRIPTION: HT Flat Sheet
KAISER ORDER NUMBER: 1160889	LINE ITEM: 2	SHIP DATE: 11/14/2013	ALLOY: 2024	CLAD: BARE	TEMPER: T3
WEIGHT SHIPPED: 3293 LB	QUANTITY: 117 PCS EST.	B/L NUMBER: 2044959	GAUGE: 0.0400 IN	WIDTH: 48.000 IN	LENGTH: 144.000 IN
SHIP TO:  COPPER & BRASS SALES 404 CENTURA COURT SPARTANBURG, SC 29303 US			SOLD TO:  COPPER & BRASS SALES ATTN: ACCOUNTS PAYABLE P.O. Box 5116 SOUTHFIELD, MI 48086 US		

MHU 1730227: LOT 663172A5: 117 pieces

### Certified Specifications

AMS 4037/RevP AMS-QQ-A-250/4/RevA ASTM B 209/Rev10 CMMP 019/RevD CMMP 025/RevU

Test Code: 1504

### Test Results:

LOT: 663172A5 CAST: 641 DROP: 27 INGOT: 3

Melted in USA  
(ASTM B8/B557)  
(EN 2002-1)

Tensile: Temper	Dir/#Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
T3	LT / 02 (Min:Max)	68.1 : 68.2 (470 : 470)	46.0 : 46.1 (317 : 318)	17.1 : 17.8

(ASTM B1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual	0.09	0.23	4.7	0.57	1.3	0.01	0.16	0.02	0.01	0.00	TOT 0.03

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
2024	MIN	0.00	0.00	3.8	0.30	1.2	0.00	0.00	0.00	0.00	MAX 0.05
	MAX	0.50	0.50	4.9	0.9	1.8	0.10	0.25	0.15	0.05	TOT 0.15

Aluminum Remainder

Plant Serial: 4315340

Kaiser Order Number: 1160889

Line Item: 2

Page 1 of 2

From: ThyssenKrupp Materials NA

Cust. THYSSENKRUPP MATERIALS NA - ECAD Del.: 2402984673

CstAr

CstOr 256039

Wgt.: 55.296 LB

Date 02/20/2014

*John L. Zambetti*

**KAISER**  
**ALUMINUM**  
**FABRICATED PRODUCTS**

*Best in Class*

**CERTIFIED TEST REPORT**

<http://Online.KaiserAluminum.com>

Kaiser Aluminum  
Trentwood Works  
Spokane, WA 99215-5108  
(800) 367-2586

**CERTIFICATION**

Kaiser Aluminum Fabricated Products, LLC (Kaiser) hereby certifies that metal shipped under this order was melted in the United States of America or a qualifying country per DFARS 225.8/2-1(a), was manufactured in the United States of America, and meets the requirements of DFARS 252.223 for domestic content. This material has been inspected, tested and found in conformance with the requirements of the applicable specifications as indicated herein. For material thicknesses outside specification limits, mechanical properties are as shown herein and chemical composition meets specification requirements. All metal which is solution heat treated complies with AMS 2772. Any warranty is limited to that shown on Kaiser's standard general terms and conditions of sale. Test reports are on file, subject to examination. Test reports shall not be reproduced except in full, without the written approval of Kaiser Aluminum Fabricated Products, LLC laboratory. The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under federal law. ISO-9001:2000 certified.

JAMES HEMENWAY, LABORATORIES SUPERVISOR

*[Signature]*

Plant Serial: 4315340  
Kaiser Order Number: 1160889  
Line Item: 2

Page 2 of 2

From: ThyssenKrupp Materials NA  
Cust. THYSSENKRUPP MATERIALS NA - ECAD Del.: 2402984673  
CstAr CstOr 256039  
Wgt.: 55.296 LB Date 02/20/2014

*[Signature]*

**COPPER AND BRASS SALES**

MATERIAL TYPE

ALUMINIUM ALLOYS

PRODUCT DESIGNATION

2014 2024 2224 2324 7050 7075 7150 7175 7475 ALUMEC 89 ALUMEC 99 QC-7

**"WARNING"**

SMALL CHIPS, FINE TURNINGS AND DUST MAY IGNITE READILY. EXPLOSION POTENTIAL MAY BE PRESENT WHEN: DUST OR FINES ARE DISPERSED IN THE AIR; FINE, DUST OR MOLTEN ALUMINUM ARE IN CONTACT WITH CERTAIN METAL OXIDES; OR, CHIPS, FINES, DUST OR MOLTEN ALUMINUM ARE IN CONTACT WITH WATER OR MOISTURE. KEEP AWAY FROM IGNITION SOURCE. USE EXPLOSION-PROOF VENTILATION. KEEP MATERIAL DRY.

THIS PRODUCT CONTAINS BERYLLIUM AND COPPER. INHALING BERYLLIUM DUST OR FUMES MAY CAUSE CHRONIC BERYLLIUM DISEASE (CBD), A SERIOUS CHRONIC LUNG DISEASE IN SOME INDIVIDUALS. BERYLLIUM IS A CANCER HAZARD; OVER TIME CBD AND CANCER CAN BE FATAL. TARGET ORGAN IS PRIMARILY THE LUNG. INHALING LARGE AMOUNTS OF COPPER, MAGNESIUM OXIDE, MANGANESE OXIDE, AND ZINC OXIDE FUMES OR DUST MAY CAUSE METAL FUME FEVER WITH FLU-LIKE SYMPTOMS. CHRONIC OVEREXPOSURE TO COPPER MAY CAUSE THICKENING OF THE SKIN; AND SKIN, TEETH, AND HAIR DISCOLORATION. CHRONIC OVEREXPOSURE TO MANGANESE DUST CAN CAUSE CENTRAL NERVOUS SYSTEM DAMAGE, SCARRING OF THE LUNGS AND REPRODUCTIVE HARM IN MALES. TARGET ORGAN IS PRIMARILY THE LUNG, BUT REPEATED HIGH EXPOSURE CAN ALSO AFFECT THE LIVER. CHRONIC OVEREXPOSURE TO IRON OXIDE DUST/FUME MAY CAUSE LUNG SIDEROSIS. CHRONIC OVEREXPOSURE TO SILICON DUST CAN CAUSE CHRONIC BRONCHITIS. OVEREXPOSURE TO AMORPHOUS SILICA CAN CAUSE DRYING OF THE MUCOUS MEMBRANES OF THE EYES, NOSE, AND THROAT.

THIS PRODUCT ALSO CONTAINS NICKEL AND CHROMIUM COMPOUNDS. INHALATION OF NICKEL DUST OR FUME MAY RESULT IN INFLAMMATION OF THE RESPIRATORY TRACT AND CAUSE NASAL AND/OR LUNG CANCER. NICKEL HAS BEEN IDENTIFIED AS A POTENTIAL HUMAN CARCINOGEN. EXPOSURE TO CHROMIUM DUST OR FUMES MAY CAUSE METAL FUME FEVER WITH FLU-LIKE SYMPTOMS AND KIDNEY AND LIVER DAMAGE. UNDER HIGH TEMPERATURES, HEXAVALENT CHROMIUM MAY BE PRODUCED, IF IN THE INSOLUBLE FORM, IT IS A CONFIRMED HUMAN CARCINOGEN. (CALIFORNIA PROPOSITION 65).

IF COATED WITH OIL, MAY CAUSE SKIN IRRITATION/DERMATITIS BY CONTACT. WELDING FUME IS LISTED AS A POSSIBLE CARCINOGENIC TO HUMANS.

READ THE ALUMINIUM/ALUMINIUM ALLOYS MATERIAL SAFETY DATA SHEET (MSDS) ON FILE WITH YOUR EMPLOYER BEFORE WORKING WITH THIS MATERIAL.

\* If processing or recycling produces particulate, use exhaust ventilation or other controls designed to prevent exposure to workers. Examples of such activities include melting, welding, grinding, abrasive sawing, sanding and polishing. Any activity which abrades the surface of this material can generate airborne particulate. Use appropriate NIOSH approved respiratory protection (P95; P100 for lead with quantitative fit testing required) if exposures exceed the permissible limits.

\* The Occupational Safety and Health Administration (OSHA) have set mandatory limits on occupational exposures.

\* Aluminum, in solid form and as contained in finished products presents no special health risk.

\* Sold for manufacturing purposes only. This product can be recycled; contact your sales representative.

For additional information, call or write to Copper and Brass Sales, 22355 West Eleven Mile Road, Southfield, MI 48033, telephone 248-233-5600, or visit our web site @ [www.copperandbrass.com](http://www.copperandbrass.com).

FORWARDED TO INSURANCE SUPERVISOR  
AUTHORISED SIGNATORY

# ADITYA BIRLA HINDALCO INDUSTRIES LIMITED



Jeevan Deep Building, 1 Prafulla Chandra Sen Sarani,  
Kolkata-700071, India. Tel:91-33-22602110  
Fax: 491-93-22604808  
Regd. Office: Century Bhuban, Dr. Amle Desai Road, W-4,  
Mumbai-400 026, INDIA.

Page 2 of 2

Date: 20-SEP-13

NAME OF THE PARTY : RYERSON CANADA INC., 161 THE WEST HALL, TORONTO, ONTARIO M5C4V6, CANADA.,  
PRODUCT : ALUMINIUM SHEET.  
QTY (MT) : 20.923  
LC/PO. & DATE : 64687167 Dt. 20.08.2013  
INVOICE NO : HRS/R/2014/72

**COPY**

## QUALITY CERTIFICATE

SRNO	Package No	Alloy Temper	Net Wt (MT)	Size (mm)	Coil Nos.	Cast No./Heat No.
11	JCS3086	AA3052, H32	1.485	2438 x 1219 x 2.03	H13HASH0805017	JCS3086
12	JCS2981	AA3052, H32	1.517	2438 x 1219 x 2.03	H13HASH0805018	JCS2981
13	2D0192B0182	AA3052, H32	1.502	3048 x 1524 x 2.54	H13HASH0819010	2D0192B0182
14	2D0193A0185	AA3052, H32	1.505	3048 x 1524 x 2.54	H13HASH0819011	2D0193A0185
Total-			20.923			

## CHEMICAL COMPOSITION (%)

Cast No	Si	Fe	Mn	Pb	Cu	SA	Cr	Al	Zr	Bi	Fe	V	Co	Bi	Others	Rem. Alum.
11 JCS3086	.2	.49	.137	2.6	.005	0	0	.013	0	0	0	0	0	0		96.397
12 JCS2981	.2	.49	.137	2.6	.005	0	0	.013	0	0	0	0	0	0		96.397
13 2D0192B0182	.153	.285	.041	3.413	.01	0	0	.02	0	0	0	.005	0	0		96.887
14 2D0193A0185	.124	.301	.066	3.357	.016	0	0	.02	0	0	0	.005	0	0		96.88

## MECHANICAL PROPERTIES

Cast No	UTS (Kg/cm2)	YS (Kg/cm2)	% Elongation	Hard Test
11 JCS3086	22.9	0	9.8	0 T Satisfactory
12 JCS2981	22.4	0	10	0 T Satisfactory
13 2D0192B0182	23.2	0	10.6	0 T Satisfactory
14 2D0193A0185	22.6	0	11.8	0 T Satisfactory

## OTHER TESTS

Remarks:- (1) RYERSON PO NO.736670 (2) ISSUED BY THE MANUFACTURER.







ESSAR STEEL ALGOMA INC., 105 West Street, Sault Ste. Marie, Ontario, Canada P6A 7B4

SO No., Item & Date.: 8017177 000020 2014/01/09	Shipment No. & Date.: 1000083594 2014/01/10	TC No., Date & Time : ESA-128192 2014/01/12 - 08:41:14
Sold to Customer Name and Address : RYERSON INC FINANCIAL DRIVE 7525 BRAMPTON, Ontario, Canada L6Y 5P4	Ship to Customer Name and Address: RYERSON INC FINANCIAL DRIVE 7525 BRAMPTON, Ontario, Canada L6Y 5P4	Customer PO NO./Item: 744335 / 2 BOL NO.: 1000083594 Cust. Part No.: 7804-2405 Carrier : NATIONAL TRANSPORTATION - 1158A
Customer Specification : CR STEEL SHEET Carbon CQ / CS ASTM A1008 CS TY B (2012) Mark Number 7804-2405 Batch Annealed Top Semi Critical Surface Improved Shape Pickled Light Oiled Light Matte Finish Edge Sealant Required Std Thickness Tol		

Supplementary Instructions : Test Cert 1:905-792-1617

Insp T/R : Chemical Analysis

Cust Use : AUTO IMPROVED SHAPE & SURF

ESSAR STEEL ALGOMA INC. HEREBY CERTIFIES THAT THE MATERIAL HEREIN DESCRIBED WAS MADE AND TESTED IN ACCORDANCE WITH THE RULES OF THE SPECIFICATION SHOWN. ALL RESULTS ARE RETAINED IN ACCORDANCE WITH THE COMPANY'S STANDARD RECORD KEEPING PRACTICES.  
THIS MILL TEST REPORT MAY NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF ESSAR STEEL ALGOMA INC. IF YOU RECEIVE THIS DOCUMENT AND ARE NOT THE INTENDED RECEIVER, PLEASE CALL (705)945-4095 FOR INSTRUCTIONS ON METHOD OF DISPOSAL OF DOCUMENT.

MEETS EN 10204 3.1  
ISO QUALITY AND ENVIRONMENTAL CERTIFICATES AVAILABLE AT WWW.ESSARSTEELALGOMA.COM

ALL HEATS FULLY KILLED.  
HEATS INDICATED WITH (\*) FINE GRAINED.  
HEATS INDICATED WITH (+) MADE IN CANADA WITH DOMESTIC AND NORTH AMERICAN MATERIALS.

Dimensions (T x W x L)	Batch No.	Heat No.-MS	Quantity	Pcs											
0.0440" x 48.000"	SAM9918B	3683T3-51	21,740 LB	1											
CHEMICAL PROPERTIES															
Heat No. (wt%)	C	Mn	P	S	Si	Cr	Ni	Cu	Mo	Al	Nb	V	B	IT	N
3683T3 <sup>+</sup>	0.04	0.26	0.003	0.007	0.020	0.01	0.01	0.01	0.00	0.035	0.000	0.000	0.0000	0.001	0.0033

K. UGHADPAGA

MANAGER METALLURGICAL SERVICES

**\*\*WARNING\*\*** THE TEST RESULTS AND VALUES REPORTED HEREIN INDICATE ONLY THAT (1) THE PARTICULAR STEEL FOR WHICH THIS CERTIFICATE IS ISSUED MEETS THE MINIMUM SPECIFIED YIELD STRENGTH AND (2) THE ANALYSIS AND PHYSICAL PROPERTIES OF SUCH STEEL ARE IN CONFORMANCE WITH THE REQUIREMENTS OF THE SPECIFICATION INDICATED. THE RESULTS OR VALUES REPORTED HEREIN CAN NOT BE USED TO QUALIFY THE STEEL FOR ANY SPECIFICATION OTHER THAN THE ONE INDICATED AND CAN NOT BE RELIED UPON FOR ANY PURPOSE (INCLUDING DESIGN OR CALCULATIONS) AS REPRESENTING THE ACTUAL STRENGTH OF SUCH STEEL.

Date: 2014/01/12 Time: 08:41:14 Page no: 1 of 1

PO/Rel  
We certify that this is a true copy of the report  
furnished by the producer of the metal, or data  
resulting from tests made in approved labs.

Signed by: \_\_\_\_\_

Attn: RICK

PART NO.

### 产品质量证明书 MATERIAL TEST CERTIFICATE

无锡宝昌金属制品有限公司  
Wuxi Baichang Metal Products Co., Ltd.

PAGE 2 OF 2

单号: EX13093010S  
Order No.  
货方: GLOBAL STAINLESS STEEL INC.  
用方: GLOBAL STAINLESS STEEL INC.  
ONSIGNEE

品名: STAINLESS STEEL SHEETS,  
Commodity SLIT EDGE

标准: ASTM A240/A240M  
Specification:

牌号: 304  
Type  
表面加工: 2B  
Surface Finish

编号: EX1309301  
Invoice No.  
发行日期: 2013-10-26  
Date

用 户 名: GLOBAL STAINLESS STEEL INC.										Surface Finish		化 学 成 分									
ONSIGNEE										Specification		Chemical Composition(%)									
序号 No.	货物编号 Product No.	产品尺寸 Product Size			数量 Number	重量 Weight Kg	拉伸试验 Tensile Test			表面 硬度 Hardness HRB	炉批号 HEAT NO.	C	Si	Mn	P	S	Ni	Cr	N		
		厚度 Thickness MM	宽度 Width MM	长度 Length MM			Tensile Test														
							屈服强度 0.2% YS N/mm <sup>2</sup>	抗拉强度 TS N/mm <sup>2</sup>	延伸率 EL %												
12	13102612	0.6096	1219.2	2438.4	118	1612	250	690	57	83	A1303883	0.0400	0.390	1.1300	0.0350	0.0010	8.0200	18.120	0.0400		
13	13102613	0.6096	1219.2	2438.4	118	1616	250	690	57	83	A1303883	0.0400	0.390	1.1300	0.0350	0.0010	8.0200	18.120	0.0400		
14	13102614	0.7620	1219.2	2438.4	88	1644	271	665	58	89.5	A1303883	0.0400	0.390	1.1300	0.0350	0.0010	8.0200	18.120	0.0400		
15	13102615	0.7620	1219.2	2438.4	87	1626	271	665	58	89.5	A1303883	0.0400	0.390	1.1300	0.0350	0.0010	8.0200	18.120	0.0400		
16	13102616	1.2192	1219.2	2438.4	54	1494	267	695	55	87	A1303987	0.0400	0.530	1.1000	0.0330	0.0010	8.0200	18.160	0.0400		
17	13102617	1.2192	1219.2	2438.4	50	1378	267	695	55	87	A1303987	0.0400	0.530	1.1000	0.0330	0.0010	8.0200	18.160	0.0400		
18	13102618	1.2192	1219.2	3048	42	1460	267	695	55	87	A1303987	0.0400	0.530	1.1000	0.0330	0.0010	8.0200	18.160	0.0400		
19	13102619	1.2192	1219.2	3048	45	1574	267	695	55	87	A1303987	0.0400	0.530	1.1000	0.0330	0.0010	8.0200	18.160	0.0400		
20	13102620	1.5240	1219.2	2438.4	43	1485	271	680	52	87	A1303988	0.0400	0.430	1.1300	0.0380	0.0010	8.0300	18.230	0.0300		
21	13102621	1.5240	1219.2	2438.4	43	1487	271	680	52	87	A1303988	0.0400	0.430	1.1300	0.0380	0.0010	8.0300	18.230	0.0300		
22	13102622	1.9050	1219.2	2438.4	40	1725	268	650	53	84	A2304006	0.0300	0.440	1.1500	0.0180	0.0010	8.1000	18.250	0.0400		
23	13102623	1.9050	1219.2	2438.4	41	1755	268	650	53	84	A2304006	0.0300	0.440	1.1500	0.0180	0.0010	8.1000	18.250	0.0400		
24	13102624	3.0480	1219.2	3048	17	1482	280	675	54	84	A1303883	0.0400	0.390	1.1300	0.0350	0.0010	8.0200	18.120	0.0400		
25	13102625	3.0480	1219.2	3048	19	1656	280	675	54	84	A1303883	0.0400	0.390	1.1300	0.0350	0.0010	8.0200	18.120	0.0400		
												技术本部				TECHNICAL DEPT.					
												此证明书所附产品均符合订单和标准的制造要求									

备注 (Remarks):

1. 尺寸和表面: 合格

Size and Surface: Guaranteed

兹证明所列产品均符合订单和标准的制造要求

WE HEREBY CERTIFY THAT THE MATERIAL HEREIN  
HAS BEEN MADE IN ACCORDANCE WITH THE ORDER AND  
SPECIFICATION

\*此报告仅可完全复制

\*The report can only be copied completely

技术本部

TECHNICAL DEPT.

无锡宝昌金属制品有限公司

WUXI BAICHANG METAL PRODUCTS CO., LTD.

# THYSSENKRUPP MATERIALS NA

## Certificate of Mill Test Results

BL PEC-000000-000

Pg 1/1

PO/Ref

We certify that this is a true copy of the report furnished by the producer of the metal, or data resulting from tests made in approved labs.

Signed by:

Ann: RICK

PART NO.

1846

<b>ThyssenKrupp</b> <b>ThyssenKrupp Stainless USA</b>		<b>INSPECTION CERTIFICATE</b> <b>CERTIFICADO DE INSPECCION</b> <b>ANÁLISIS DE PROPIEDADES</b> according to / de acuerdo con / French EN 10204-3.1		Document number / 13170000 <b>0000032224 /</b> Page / Pages / Total <b>1 / 1</b>																	
<b>1 ThyssenKrupp Drive, P.O. Box 13000, Calvert, AL 36513-2300</b> <b>CLARIANT METALS SALES LIMITED</b> <b>980 DENBY ROAD EAST SUITE 305</b> <b>MISSISSAUGA ON L5T 2J5</b> <b>CANADA</b>		<b>CLARIANT METALS SALES LIMITED, MISSISSAUGA</b> Customer's name / number / of the Product / Client's name / number / of the Product <b>70-1846</b> Material's name / number / of the Product / Material's name / number / of the Product <b>901147780 / 001</b> Delivery name / of the Product / Delivery name / of the Product <b>86328223 / 010</b> Form / Product / Sample <b>SHEET 0.15 / 0.15</b> Steel grade and quality / Annealed / Steel grade and quality / Annealed <b>TYPE 304 L / 304</b>																			
Form of delivery / Condition of delivery / Condition of delivery <b>ASTM A240 / 240M, ASME SA-240 and SA-240M Part A Ed. 2010</b> <b>ASTM A240 / 240M, ASME SA-240 and SA-240M Part A Ed. 2010</b>		Customer's request no. / Form of delivery / Customer's request no. / Form of delivery <b>3.25 mm x 1.21920 mm x 2.43840 mm</b> <b>0.1250 inch x 0.0480 inch x 0.0950 inch</b> Production number / Form of delivery / Production number / Form of delivery <b>A00</b> Date of delivery / Form of delivery / Date of delivery / Form of delivery <b>06/12/13</b>																			
Order no. / Form of delivery / Order no. / Form of delivery <b>6051813</b>	Lot / Form of delivery / Lot / Form of delivery <b>32</b>	Weight / Form of delivery / Weight / Form of delivery <b>4.890 kg / 2.216 kg</b>	Order no. / Form of delivery / Order no. / Form of delivery <b>713000</b>	Lot / Form of delivery / Lot / Form of delivery <b>890429</b>	Sample no. / Form of delivery / Sample no. / Form of delivery <b>1000086330</b>																
Order no. / Form of delivery / Order no. / Form of delivery <b>6051813</b>	Lot / Form of delivery / Lot / Form of delivery <b>32</b>	Weight / Form of delivery / Weight / Form of delivery <b>4.890 kg / 2.216 kg</b>	Order no. / Form of delivery / Order no. / Form of delivery <b>713000</b>	Lot / Form of delivery / Lot / Form of delivery <b>890429</b>	Sample no. / Form of delivery / Sample no. / Form of delivery <b>1000086330</b>																
Weight / Form of delivery / Weight / Form of delivery <b>5.775 kg / 4.434 kg</b>		Chemical composition / Chemical composition / Chemical composition / Chemical composition <table border="1"> <thead> <tr> <th>% C</th> <th>% Si</th> <th>% Mn</th> <th>% P</th> <th>% S</th> <th>% Cr</th> <th>% Ni</th> <th>% N</th> </tr> </thead> <tbody> <tr> <td>0.028</td> <td>0.50</td> <td>1.66</td> <td>0.027</td> <td>0.0018</td> <td>18.05</td> <td>8.00</td> <td>0.080</td> </tr> </tbody> </table>				% C	% Si	% Mn	% P	% S	% Cr	% Ni	% N	0.028	0.50	1.66	0.027	0.0018	18.05	8.00	0.080
% C	% Si	% Mn	% P	% S	% Cr	% Ni	% N														
0.028	0.50	1.66	0.027	0.0018	18.05	8.00	0.080														
Order no. / Form of delivery / Order no. / Form of delivery <b>350420</b>		Transverse <table border="1"> <thead> <tr> <th>Yield strength R<sub>eH</sub> / MPa</th> <th>Tensile strength R<sub>m</sub> / MPa</th> <th>El. Elong. A<sub>5</sub> / %</th> <th>HRB</th> </tr> </thead> <tbody> <tr> <td>45,400 / 302</td> <td>53,113 / 642</td> <td>56.9</td> <td>42</td> </tr> <tr> <td>43,945 / 305</td> <td>55,113 / 642</td> <td>56.1</td> <td>42</td> </tr> </tbody> </table>				Yield strength R <sub>eH</sub> / MPa	Tensile strength R <sub>m</sub> / MPa	El. Elong. A <sub>5</sub> / %	HRB	45,400 / 302	53,113 / 642	56.9	42	43,945 / 305	55,113 / 642	56.1	42				
Yield strength R <sub>eH</sub> / MPa	Tensile strength R <sub>m</sub> / MPa	El. Elong. A <sub>5</sub> / %	HRB																		
45,400 / 302	53,113 / 642	56.9	42																		
43,945 / 305	55,113 / 642	56.1	42																		
Test of metal properties / Test of metal properties / Test of metal properties / Test of metal properties <b>OK</b>		Test of metal properties / Test of metal properties / Test of metal properties / Test of metal properties <b>OK</b>																			
No weld repairs No intentional addition of Mercury compounds were made or used Form of radiographic examination <b>EN 10623 Directive 2002/95/EC Compliant</b> Country of Heat as per ISO 5005-1																					
<b>ThyssenKrupp Stainless USA, LLC</b> An ISO 9001:2008 certified company		The information provided is a true copy of data on file / Les informations fournies sont une copie exacte des données / The information provided is a true copy of data on file / Les informations fournies sont une copie exacte des données / The information provided is a true copy of data on file / Les informations fournies sont une copie exacte des données /		Date of last test / Date of last test / Date of last test / Date of last test <b>12/12/2012</b>																	